PCI-to-SATA Adapter
AEC-6290M

User's Manual

—— Version:1.0 ——

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Chapter 1 Introduction

1.1 Overview

ACARD AEC-6290M is a 32-bit, 33MHz, 2-channel, high-performance PCI-to-SATA adapter. Its on-board Flash BIOS supports boot function. Besides, it can coexist with the on-board Serial ATA controller. It has the full-featured PCI 32-bit bus master transfer, including PCI-enhanced data transfer commands (133MB/s) and built-in Scatter/Gather function for multitasking OS.

1.2 Features

- A standalone PCI-to-SATA controller.
- Supports Serial ATA hard drives.
- Data transfer rate up to 150MB/s.
- Cost-effective and high-performance.
- Supports Mac OS 8.5, OS 9 and OS X.
- Supports G3, G4 and G5 series Power Mac models.

1.3 Specifications

■	Power requirement ---	Voltage: 3.3V +/– 2%
		5V +/– 2%
		Current: 0.5A Max.
■	Environment ---	Operating temperature: 0°C to 70°C
		Storage temperature: –20°C to 85°C
■	Humidity ---	15% to 90%
■	Dimensions ---	Width: 12.95cm
		Height: 6.77cm
■	Connectors ---	Two 7-pin SATA connectors

1.4 Package

When you open the package, please examine the following items.

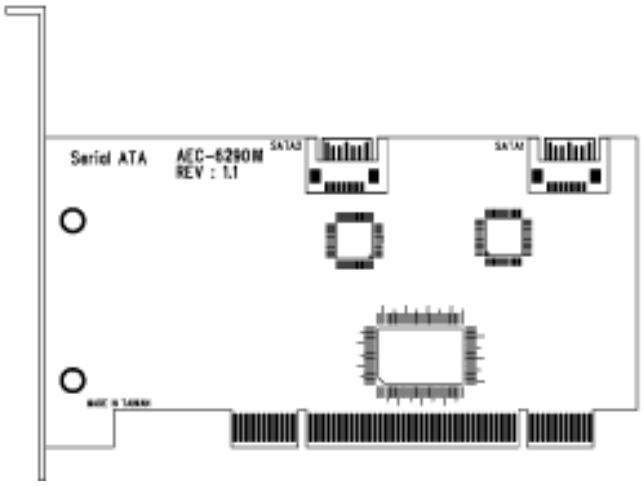
- AEC-6290M × 1
- Internal Serial ATA Cable × 1
- User's Manual × 1
- ACARD Support CD × 1
- Power cord for Serial ATA hard drive × 1

Chapter 2 Hardware Installation

You can install AEC-6290M and hard drives successfully to your Mac machine according to subsection 2.1. Before installing the operating system, if the hard drives connected to AEC-6290M contain important data, you had better back up.

2.1 Quick Installation

1. Open the Mac machine's or Power Mac's case (refer to Mac manual).
2. Choose an empty PCI slot to insert AEC-6290M.
3. Install hard drives into the Mac machine or Power Mac.
4. Connect AEC-6290M and the hard drives with serial ATA cables.
5. Close the Mac machine's or Power Mac's case.



2.2 HDD Compatibility

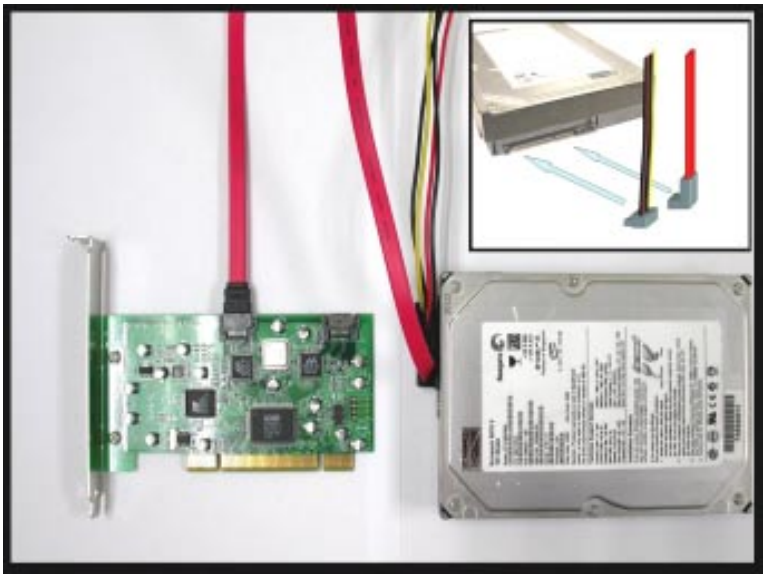
AEC-6290M is particularly designed for DMA hard drives. It supports most SATA hard drives of the following brands.

- Hitachi
- Seagate
- Maxtor
- Western Digital

2.3 Hardware Installation

It is quite easy to connect the serial ATA cable and the power cord to SATA hard drives, because they are foolproof. The methods are given below.
(1). Connect the serial ATA cable to AEC-6290M and the serial hard drive.
(2). Connect the power cord to the hard drive.

The enclosed serial ATA cable and power cord are specially designed for Mac computers. Each of them has a connector bending 90 degrees on one end. When you use the serial ATA cable, remember to connect the end with a bending connector to the hard drive and another end to AEC-6290M.



NOTICE: The serial ATA cable is used to transfer data of very high frequency. It is suggested not to connect and disconnect it often, for the connector is easily damaged.

Chapter 3 System Installation

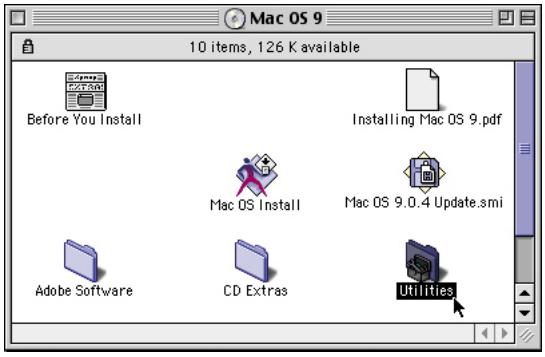
This chapter is going to tell you how to install and use the hard drives connected to AEC-6290M in different operating systems (OS 9 , OS X) and applications. The built-in driver in OS X 10.1 and 10.2 is the same as that for AEC-6280M. To get better performance and stability you should update the driver before installation. The installations of OS 9 and OS X are somewhat different.

3.1 Install OS into HDD with the Adapter

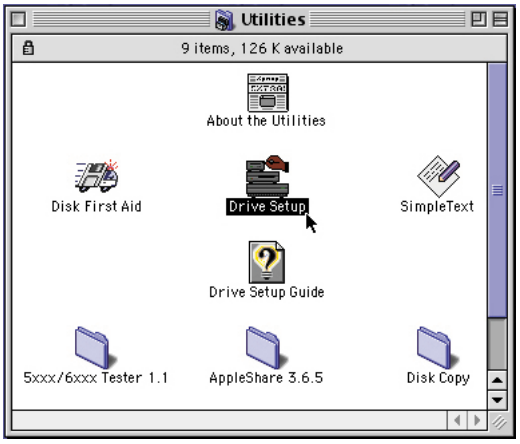
Here we will install OS 9 and OS X into the hard drive(s) connected with AEC-6290M, the adapter. After installation you can boot from the original or the newly installed hard drive.

3.1.1 Install OS 9 into HDD with the Adapter

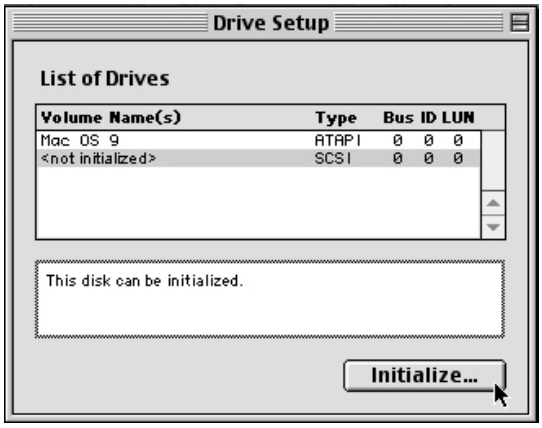
1. Be sure that the hardware is installed correctly.
2. Insert the OS 9 source CD into CD/DVD-ROM.
3. Power on and press “C” key.
4. Wait for the appearance of OS 9.
5. Double click “Utilities”.



6. Double click “Drive Setup”.



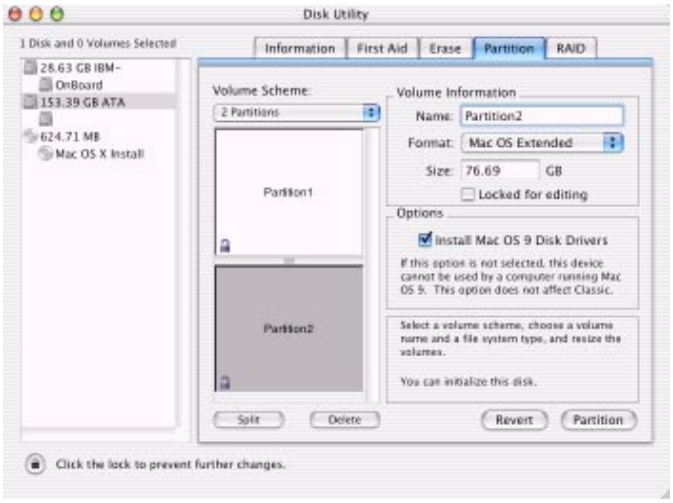
7. Choose the hard drive connected to AEC-6290M, then click “Initialize”. For detailed information of “Drive Setup”, please refer to Mac OS manual.



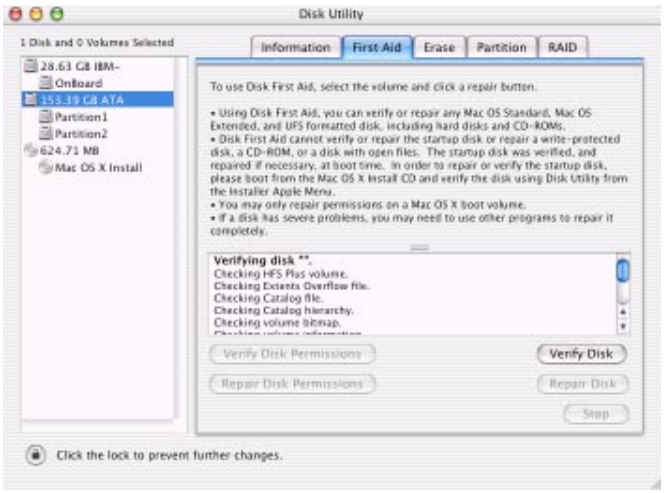
8. Quit “Drive Setup Utility” and start to install OS 9 into the hard drive(s).

3.1.2 Install OS X into HDD with the Adapter

1. Be sure that the hardware is installed correctly.
2. Insert the OS X source CD into CD/DVD-ROM.
3. Power on, press “C” key to boot from CD/DVD-ROM.
4. Before installation,click “Installer” on the top selection row.
5. Click “Open Disk Utility”.
6. Choose the hard drive you want to initialize, and click “Partition” to decide the number of partitions you need.



7. After partitioning or erasing the volume, you can click “First Aid” to verify the disk partition into which you are about to install OS X.


Disk Utility
1 Disk and 0 Volumes Selected
28.63 GB IBM-
OnBoard
153.39 GB ATA
Partition1
Partition2
624.71 MB
Mac OS X Install
Information
First Aid
Erase
Partition
RAID
To use Disk First Aid, select the volume and click a repair button.
• Using Disk First Aid, you can verify or repair any Mac OS Standard, Mac OS Extended, and UFS formatted disk, including hard disks and CD-ROMs.
• Disk First Aid cannot verify or repair the startup disk or repair a write-protected disk, a CD-ROM, or a disk with open files. The startup disk was verified, and repaired if necessary, at boot time. In order to repair or verify the startup disk, please boot from the Mac OS X Install CD and verify the disk using Disk Utility from the Installer Apple Menu.
• You may only repair permissions on a Mac OS X boot volume.
• If a disk has severe problems, you may need to use other programs to repair it completely.
Verifying disk "".
Checking HFS Plus volume.
Checking Extents Overflow file.
Checking Catalog file.
Checking Catalog hierarchy.
Checking volume bitmap.
Verify Disk Permissions
Verify Disk
Repair Disk Permissions
Repair Disk
Stop
Click the lock to prevent further changes.

8. Quit “Disk Utility” and start the OS X installation.
9. Update the driver of AEC-6290M to the newest version, which is in the ACARD support CD. Or download the driver from http://www.acard.com.

NOTICE: If you’re an OS X 10.3 user, you don’t need to update, because the newest version of driver has been built in the OS.

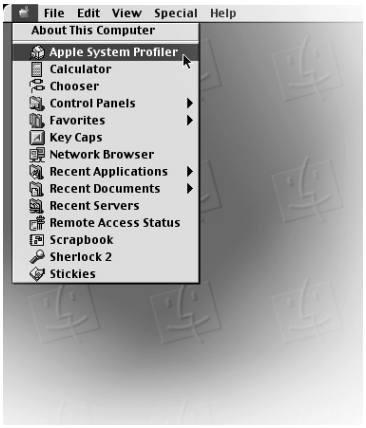
3.1.3 Verify System Profiler

For Mac OS 9

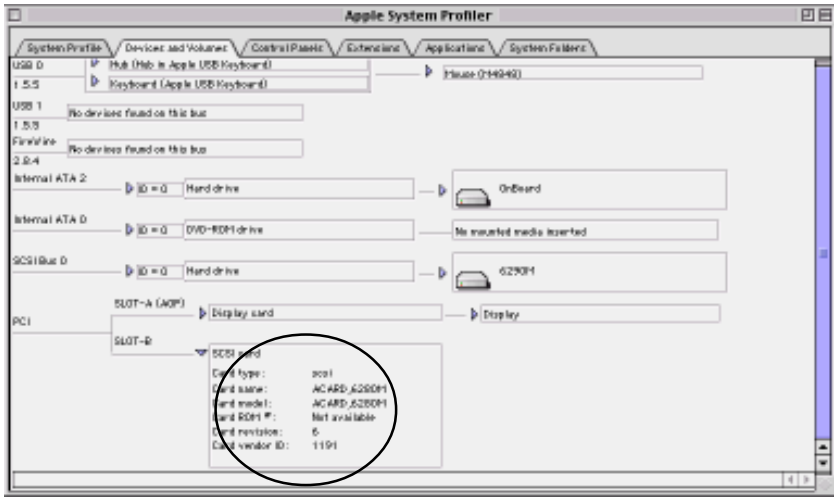
After you initialize the hard drive successfully, a new “Untitled” hard drive icon will appear on the Mac window. Of course you can give the hard drive a name.

You can find the information of AEC-6290M under the Apple Logo. Please follow the instructions below to read the system information.

1. Click Apple Logo and choose “Apple System Profiler”.



2. Under “Apple System Profiler” click “Devices and Volumes” to read the status of devices. And choose “PCI” to find the SCSI card and hard drives. (Owing to the same chipset in 6290M and 6280M, 6290M is regarded as 6280M. In fact, apart from the different display, 6290M’s functions are all right.)



For Mac OS X

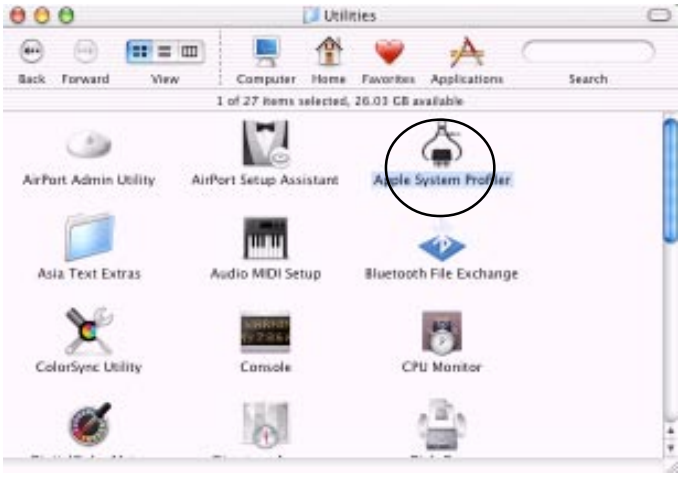
Basically if you have installed the hard drive as well as AEC-6290M successfully, and have partitioned or erased the hard drive, one or more hard drive icons will appear on the desktop. You can use the built-in Disk Utility to verify or repair the hard drive when it has something wrong.

You can find the information of AEC-6290M under the Apple Logo. Please click “About This Mac” and then “More Info”.

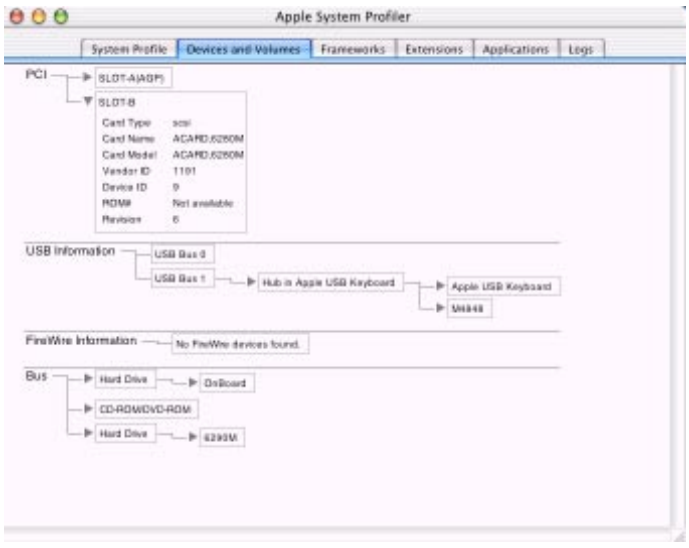
Another way of finding the system information is described below.

1. Click “Finder” at the bottom of the Mac OS screen.

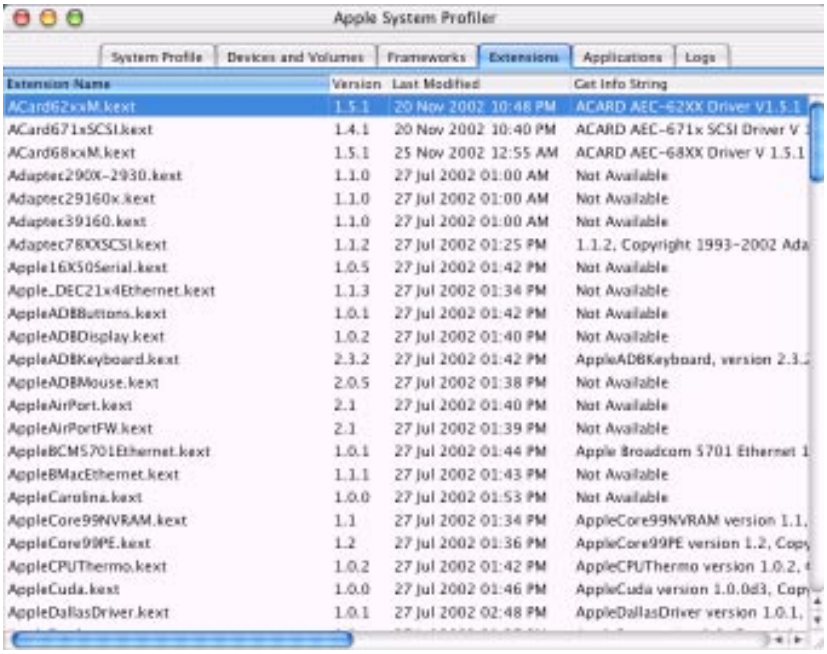
2. Click “Applications” on the tool row.
3. Under “Applications” click “Utilities”.
4. Under “Utilities” click “Apple System Profiler”.



5. Under “Apple System Profiler” click “Devices and Volumes” to read the detailed information of AEC-6290M. (Owing to the same chipset in 6290M and 6280M, 6290M is regarded as 6280M. In fact, apart from the different display, 6290M’s functions are all right.)



6. Click “Extensions” to see the version of AEC-6290M’s driver.


Apple System Profiler
System Profile
Devices and Volumes
Frameworks
Extensions
Applications
Logs
Extension Name
Version
Last Modified
Get Info String
ACard62xxM.kext 1.5.1 20 Nov 2002 10:48 PM ACARD AEC-62XX Driver V1.5.1
ACard671xSCSI.kext 1.4.1 20 Nov 2002 10:40 PM ACARD AEC-671x SCSI Driver V
ACard68xxM.kext 1.5.1 25 Nov 2002 12:55 AM ACARD AEC-68XX Driver V 1.5.1
Adaptec2900-2930.kext 1.1.0 27 Jul 2002 01:00 AM Not Available
Adaptec29160x.kext 1.1.0 27 Jul 2002 01:00 AM Not Available
Adaptec39160.kext 1.1.0 27 Jul 2002 01:00 AM Not Available
Adaptec78XXSCSI.kext 1.1.2 27 Jul 2002 01:25 PM 1.1.2, Copyright 1993-2002 Ada
Apple16X50Serial.kext 1.0.5 27 Jul 2002 01:42 PM Not Available
Apple_DEC21x4Ethernet.kext 1.1.3 27 Jul 2002 01:34 PM Not Available
AppleADBButtons.kext 1.0.1 27 Jul 2002 01:42 PM Not Available
AppleADBDisplay.kext 1.0.2 27 Jul 2002 01:40 PM Not Available
AppleADBKeyboard.kext 2.3.2 27 Jul 2002 01:42 PM AppleADBKeyboard, version 2.3.
AppleADBMouse.kext 2.0.5 27 Jul 2002 01:38 PM Not Available
AppleAirPort.kext 2.1 27 Jul 2002 01:40 PM Not Available
AppleAirPortFW.kext 2.1 27 Jul 2002 01:39 PM Not Available
AppleBCM5701Ethernet.kext 1.0.1 27 Jul 2002 01:44 PM Apple Broadcom 5701 Ethernet 1
AppleBMacEthernet.kext 1.1.1 27 Jul 2002 01:43 PM Not Available
AppleCarolina.kext 1.0.0 27 Jul 2002 01:53 PM Not Available
AppleCore99NVRAM.kext 1.1 27 Jul 2002 01:34 PM AppleCore99NVRAM version 1.1,
AppleCore99PE.kext 1.2 27 Jul 2002 01:36 PM AppleCore99PE version 1.2, Copy
AppleCPUThermo.kext 1.0.2 27 Jul 2002 01:42 PM AppleCPUThermo version 1.0.2,
AppleCuda.kext 1.0.0 27 Jul 2002 01:46 PM AppleCuda version 1.0.0d3, Copy
AppleDallasDriver.kext 1.0.1 27 Jul 2002 02:48 PM AppleDallasDriver version 1.0.1,

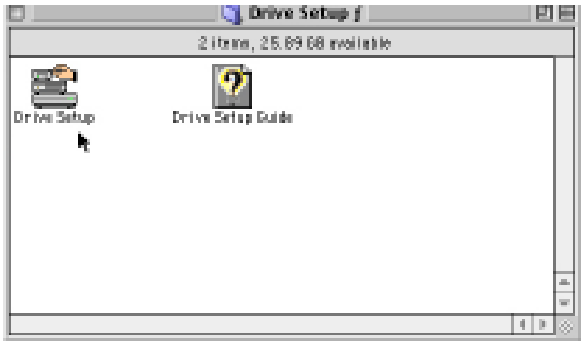
3.2 Install the Adapter in Current OS

We are going to install AEC-6290M in the current OS 9 and OS X.

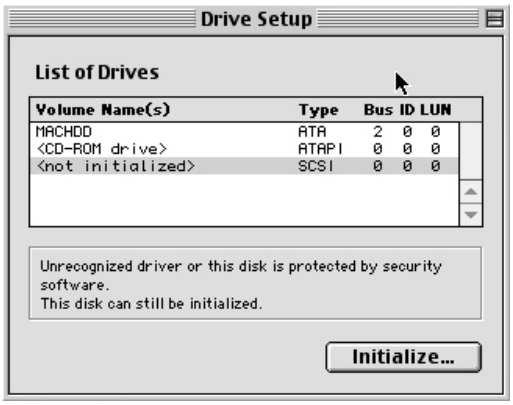
3.2.1 In OS 9

1. Be sure that the hardware is installed correctly.
2. Power on.
3. Double click “Utilities” under OnBoard\Applications. (OnBoard represents the OnBoard Mac hard drive.)

4. Double click “Drive Setup”.



5. Choose the newly installed hard drive, and click “Initialize”.

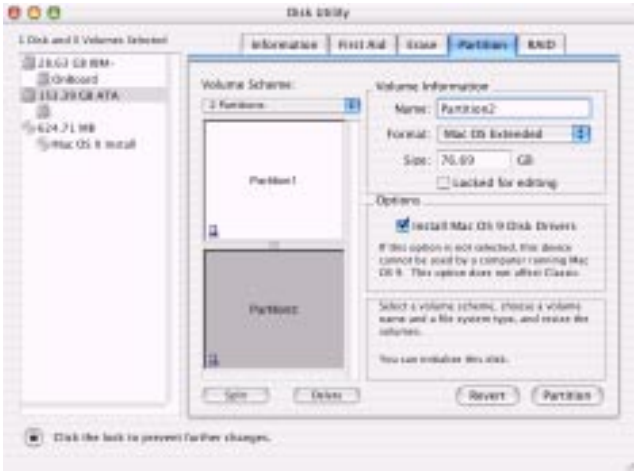


6. You can see the initialized or partitioned volume on the desktop.

3.2.2 In OS X

1. Be sure that the hardware is installed correctly.
2. Power on.
3. Update the driver of AEC-6290M to the newest version, which is in the ACARD support CD. Or download the driver from http://www.acard.com. (If you're an OS X 10.3 user, you can skip this step.)
4. Double click "Disk Utility" under OnBoard\Applications\Utilities. (OnBoard represents the OnBoard Mac hard drive.)

5. Initialize the newly installed hard drive by clicking "Partition".



6. You can see the partitioned or erased volume on the desktop.

3.2.3 Verify System Profiler

Please refer to 3.1.3.

Chapter 4 Troubleshooting

After installation, if AEC-6290M cannot work smoothly, please troubleshoot it according to the methods given below.

1. Inspect power supply

When the device is malfunctioned, inspect the power status (ON/OFF) first. If you connect more than 4 hard drives, you had better prepare another set of power source in order not to affect the stability of hard drives.

2. Inspect the SATA devices

Always let the SATA devices function in a proper mode before installing the adapter. You are suggested to inspect if every hard drive is normal in access via Mac's built-in SATA port.

3. Inspect the adapter

Inspect if the adapter is firmly inserted into the slot on the motherboard. If the connection is not good, try to clean the edge connector with an eraser.

4. Inspect all connectors and cables

Inspect if SATA connector, device power connector and cables are connected well. Cables are easily damaged because of improper folding. Try a new cable when the old one is bad.

Technical Support Form

Email: **support@acard.com**

http://www.acard.com

Model	AEC-6290M	**F/W Version**	
System Configuration			
Motherboard			
BIOS version			
SCSI adapter			
Chipset			
Memory			
Display card			
Other I/O card			
OS version			
Hard Disk Configuration			
Hard Disk Model/type			
Capacity			
Firmware version			
Others			
Problem Description			